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CLINICAL LECTURE.

OPIUM.

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I propose to take up to-day the subject of analgesics, remedies used for the relief of pain. Of these *facile princeps* is opium: the inspissated juice of the unripe capsules of the *Papaver somniferum*, or poppy. It is a very complex body, containing the alkaloids morphine, codeine, narceine, narcotine, etc., also meconic, thebolactic and sulphuric acids, extractives, a volatile odorous principle, and other substances of no importance. Of these various elements in opium, morphine and codeine are the only ones used in practical medicine. Narcotine is of interest, as to it is usually ascribed the depressing and sickening influences of the drug. Hence its elimination from all other preparations is an advantage.

In the study of the preparations to be used, we find that there are only a few worthy of consideration. The dose of the solid opium is one grain. The extract—twice the strength of the solid opium—is a preferable preparation, as it has lost the alkaloid narcotine, which has been removed by ether. Laudanum, containing ten per cent. of opium, is given ordinarily in the doses of fifteen minims—about twenty-five drops—each drop varying from one-half to two-thirds of a minim, according to the size and shape of the vessel used as a dropper. The deodorized tincture of opium contains no narcotine or oleaginous principle. It is always to be selected when a strong internal form of the drug is wanted. It is prepared by infusion, being a watery preparation, containing only enough alcohol to keep the drug properly. It is less liable to sicken than any other form of the drug. Its drop is nearly a minim in size. Tinctura opii, acamphorata, or paregoric, has in every fluid ounce two grains of opium, besides camphor and oil of anise, which give it its characteristic taste. It is more constipating than other preparations of opium on account of the camphor, and hence is more suited to diarrhœa mixtures. Eighteen drops of paregoric are equal to one of the deodorized tincture. The only other preparation of opium worthy of our consideration is the so-called Dover's powders—pulvis opii et ipecacuanhæ. They are now made of eight grains of sugar of milk to one grain each of ipecac and opium. They are especially useful for their action on the skin, being a capital combination of an opiate and a diaphoretic. Their use with children is dangerous; as they are prepared on a large scale, and often being not well mixed, they may contain much more opium than is directed.

Opium given in small doses produces first a feeling of slight exhilaration. This is quickly followed by a sensation of quiet, a subduing of restlessness, a dreamy half-sleep which may continue for hours. The state produced is not one of stimulation of the reasoning powers, but rather a kindling of the imagination. Where there is no especial desire for activity, sooner or later, depending on the patient and the size of the dose, he falls into a quiet sleep, which is not to be distinguished in any way from ordinary slumber. He awakes with a slight dryness of the throat, some depression, nausea and impairment of digestion. For a few hours also there is apt to be constipation. Some cases however show marked depression of spirits, excessive nausea and vomiting, weak pulse and muscular debility, instead of the usual symptoms I have just gone over. The vomiting is apt to be increased by any change in condition, even of the slightest. It is almost diagnostic of this condition that the patient is quiet as long as he is in a horizon-

tal position; but on attempting to rise this vomiting again comes on. In some cases this condition of depression replaces the ordinary symptoms entirely. In other patients severe pruritus is common when the action of opium is going off. This may be so pronounced that it forbids the use of the drug. In children, especially young children, opium, even in very small doses, frequently produces different symptoms, causing most pronounced depression.

The phenomena of a large dose are divided for convenience into three stages. These stages are not sharply marked; they glide into each other with no sudden changes. The first stage can be called for convenience "the stage of quiet excitement." There is no real increase in cerebral power; there is a cerebral stimulation only from the pleasant effects which are produced. There is the peculiar stimulation of the imagination in which dreams pass in endless quiet succession before the mind. If the dose be quite large, this stage may be correspondingly short. In those who are in the habit of taking opium, there may be frequently actual increase in intellectual power. Then appear the characteristic phenomena of the second stage. The respiration is slow and deep; the pulse is slow, full and strong; the body is warm and dry; the pupils are firmly contracted; the face is more or less suffused. There is abolition of all cerebral faculties, but not so complete that the patient cannot be aroused. No matter how profound the sleep may seem to be, the sleeper can be wakened up. This is an important distinction, which separate these cases from those of apoplexy. If a patient fails to respond to proper stimuli, you can be sure that a more deadly drug than opium is operating. The respiration, which is slow and full, gradually falls in rate, although on arousing the patient it is temporarily quickened. It drops from sixteen to twelve, to ten, to eight, to six, to four in the minute. The pulse comes down from seventy-five to sixty; rarely does it fall below fifty. It is still full and strong; but it does not have the great mighty stroke of the digitalis pulse. In the development of the third stage we have the same phenomena, modified by the appearance of exhaustion. The pupils are still contracted; the unconsciousness has become deeper; the respirations are distant, slow and feeble. The surface of the body is bathed in a cold, clammy sweat. The pulse is small, running and rapid. If nature is left to herself, these symptoms deepen; the respirations become excessively slow, interrupted by periods of death-like silence; the countenance grows more and more cyanotic, the lamp of life is flickering; as death approaches, the pupils widely dilate, as if to allow the soul to escape. Rarely is the course of the drug's action broken by storms —convulsions—in the Anglo-Saxon adult; they are more common in the Asiatic and in children.

We will study the symptoms produced by opium for the purpose of seeing the method of their production. They are connected with the respiration, circulation, nerve centres and the pupil.

First, the action on the nervous system. Its chief action here is as a paralysant to the cerebral cortex. It was formerly taught and believed that it produced congestion of the brain; all that we know is that the protoplasm of the brain-cells is affected by its active principle. Below the cortex, the respiratory centre is early affected; this is proved by experiments in which it was found that in animals the drug's effect was not altered by section or stimulation of the vagi, showing that its action is on the centre itself.

Second, the action on the circulation. Gscheidlen cut the pneumogastrics in an animal and gave opium, and the slow, full pulse was not produced: proving that the drug acts on the inhibitory cardiac nerves. It is also probable that it acts on the inhibitory cerebral centres, stimulating them. This is demonstrated by the instantaneous great fall in pulse-rate following the injection of a large dose of the alkaloid into the carotid—that is, into the inhibitory brain centres.

I will not go into any elaborate discussion of the experiments in regard to the action of opium on the pupil. The pupil is contracted by direct action on the oculomotor centres; the dilation as death approaches is due to paralysis of the same. I suppose that about twenty per cent. of you will tell me on a subsequent interesting occasion that in the third stage of opium poisoning the pupil is dilated; confusing this final phenomenon with the condition existing throughout the stage.

To complete the survey of the general physiological action, two points remain to be considered. In small doses morphine is a quieter of peristaltic motion; by large doses it is increased. More important is

the glandular action of opium; it acts in a most marked way on the whole alimentary tract, checking secretion and causing constipation. It is a desiccant from the mouth to the stomach and intestines. This makes it a marked factor in producing indigestion and checking the hyper-secretions of some forms of diarrhœa.

The fate of the active principle of opium in the body has been somewhat uncertain in the past. It is undoubtedly absorbed, as the alkaloid or as an alkaloidal salt. Professor Wormley has maintained that the methods used by many chemists who have reported its elimination through the kidney have been faulty. Recently, however, Professor Wormley, through careful review of the subject with the new tests for morphine has obtained evidences of that alkaloid in the urine. In cases of suppression of urine a new source of danger is apparent with opium in the system; being unable to excrete it, the kidneys throw it back into the circulation, renewing its poisonous powers on the economy. Again, in old people with weak bladders, in which there is great retention of urine, there is danger of re-absorption of the drug and its entrance again into the circulation. In severe kidney trouble, opium is undoubtedly a dangerous remedy. Its use in uræmia, for the production of diuresis, is not only ridiculous but decidedly reprehensible. Morphine thrown into the system from the bladder or the kidneys, seems to act with increased power on the economy.

The physiological action of morphine in general is similar to that of opium. The symptoms of poisoning are the same; the therapeutic action differs principally in the alimentary canal. Morphine is less of a desiccant, causes less nausea and constipation. It is about four times as powerful in its action as opium.

When an overdose of opium is taken, it is the old time-worn rule of thumb that the patient must be kept awake. But sleep, in itself, under the circumstances is not an evil; unconsciousness does not kill. As far as that goes, a patient might remain unconscious until old age, for all the evil effects it produces. The real fact is that death occurs from failure of the respiration; occasionally, if respiration could be maintained long enough, heart failure may happen; but the respiration always fails first. As unconsciousness deepens, the sensibility of the respiratory centres grows less. Consequently involuntary breathing becomes less perfectly performed. Moreover, when kept partially awake, the patient suffering with opium poisoning can be made to supplement the almost suspended involuntary breathing by voluntary efforts. Hence, there is one overwhelming indication to maintain the respiration. First, evacuate the stomach of its poisonous contents. If possible do this with an emetic. But, in view of the fact that the peripheral nerves have been benumbed by the action of the drug and the sensibility of the centres in the medulla have been diminished, a powerfully stimulant emetic is the only one of service. The so-called mechanical emetics are good, and but little depressing: sulphate of copper, or, better, sulphate of zinc or mustard. Mustard flour is generally found in the household, and is efficient. A large tablespoonful in a tumblerful of warm water should be given at once; and the dose repeated in fifteen minutes until effective. Thirty grains each of sulphate of zinc and ipecacuanha may follow; to be repeated once or twice. Large draughts of warm water should be administered in the intervals and between the vomitings, to wash out the stomach. If this should fail, then the stomach-pump should be used. It is of no service when the opium has been swallowed in solid form. A fountain-syringe with rectal tube removed, or, in an emergency, a rubber gas-pipe may be used. The external end is elevated after the other end has been passed into the stomach; water is poured into the tube by means of a funnel until the stomach is full; then, without the tube being allowed to empty itself, it is depressed, when the flow of water will be reversed. Maintain the bodily heat as in other forms of narcotic poisoning. Arouse the patient chiefly to maintain the respiration. The breathing is fuller and faster when the patient is awake, and conscious effort is added. It is often surprising how an apparently unconscious man will keep on breathing at the word of command. Walking, shaking, shouting, flagellations with fine twigs are all measures to be used. But remember you can walk your patient to death; you can easily bring on exhaustion, which only increases the odds against his life. I have seen cases beaten black and blue under this treatment. It is wrong. The natural prostration of the third stage is easily increased. I wish to call attention to the intense irritation produced by the Galvanic or Faradic dry brush. This is an agent

which is strongly helpful in preserving consciousness; it is not depressing or exhausting, and leaves no trace behind. Attempts to polarize the phrenic nerve are useless.

The cold douche is an excellent method of restoring consciousness, stimulating at the same time the respiration. Supporting the head and shoulders over an ordinary wash tub and dashing on them ice-cold water, and water a little hotter than the hand will bear alternately, is good in its effects. There are two depressing factors in the system, the opium in the blood and the increased amounts of carbonic acid from the imperfect respiration.

There are three substances which are useful as agents for respiratory stimulation. In the early part of the century when I sat on the students' benches, it was taught that coffee did good by keeping the patient awake. The fact was true; the theory was useless. The chief good done by coffee is its stimulation to the respiratory centres. Coffee is preferable to caffeine because the empyreumatic oil which it contains is more efficient in preserving consciousness, and in this indirect way aiding the respiration. Hence unlimited quantities of black, strong coffee should be poured into the patient. Atropine as a respiratory stimulant is of the greatest importance in opium poisoning, when there is evidence of failure of respiration. There is no antagonism, in the strict sense of the word, between opium and atropine in their respective action on the eye. Opium contracts the pupil by influencing the nerve centres; atropine dilates the pupil by acting on the peripheral nerves. Hence when you are told to watch the eyes in giving atropine in opium poisoning, you have no safe guide. The proper thing to do is to watch the respirations. Giving no more of the drug than is necessary, for fear of the addition of atropine poisoning to that of the opium, and yet not afraid of its administration is the correct course between Scylla and Charybdis. Do not give large doses, but frequent doses. A fiftieth or fortieth at once, followed by a sixtieth in fifteen, twenty or thirty minutes. As the respirations grow more frequent, withhold the drug. Strychnine should be of service; but it is rarely used. Again, alcohol, in the stage of depression, sustains the arterial circulation. The bodily temperature can be maintained by the use of external heat.

Whenever life is seriously menaced, artificial respiration should be resorted to. For this purpose a bellows and tube are required. From twelve to fifteen times a minute the lungs should be filled a little fuller than naturally. Tracheotomy has been suggested for the insertion of the tube, but it is unnecessary. All that is needed is some form of face mask that will cover both mouth and nostrils. The ordinary form used by dentists in nitrous oxide gas inhalation is the best and simplest for the purpose. Transfix the tongue previous to its use with a needle and hold it out by the accompanying thread. If you find that the lungs fail to expand, insert the ordinary tube used in intubation. I believe that by these means nearly every case can be saved; life being maintained until the alkaloid is eliminated.

The first indication for the use of opium is for the relief of pain. Of all the remedies that we have as analgesics, the anæsthetics and opium are the only true examples. The anæsthetics are used for the pains in which the agony is short, but while it lasts is so great that it seriously threatens life by paralysis of the vital functions. Opium, on the other hand, is used where there is any permanency to the pain. In neuralgias and chronic disease, it should be used with the greatest reluctance, for fear of the formation of the opium habit.

The second indication is to produce sleep. Formerly opium was the king that reigned supreme in this kingdom; but the territory has been invaded by many newer drugs. So that now, practically, opium is not used for this purpose, except in the sleeplessness caused by suffering. In confusional insanity, especially that form called delirium tremens, it must be used with care, so as not to overwhelm the nerve centres. Even here other remedies are more highly esteemed. In certain low fevers it can be advantageously employed. For the restlessness and insomnia of typhoid it is among the safest agents; and yet there is an almost universal prejudice against its use here. It is often combined with chloral with excellent results.

Thirdly, to allay irritation. In sudden attacks of hemoptysis, the morale of the patient is always upset; the spitting of blood is regarded by the laity as pathognomonic of phthisis, and phthisis means death to them. Again, it is of service in great mental shock of any form. In great peripheral irritation, as in confluent small-pox, where the patient is tortured with untold agonies, its use is indicated. Beyond the relief of pain there seems to be a sustaining power in

opium produced by benumbing the centres of organic life; hence in widespread inflammations where systemic collapse is threatened, opium exerts a life-saving power. There was a time when the universal treatment of peritonitis was the administration of opium. It is good treatment beyond all doubt in proper cases, and is still largely used. In sthenic cases, depletion by leeches or bleeding should be employed at the outset; or the depletion can be obtained by free purgation with saline purges. I remember one case, a third-year medical student, who had just passed his final examination. Run down in health, he had taken the opportunity between examination and commencement to work in his garden when the weather was cold and blustery. Shortly afterwards he was seized with a furious abdominal pain, agonizing in its intensity. He lay in this condition when I was called to see him. I immediately ordered his abdomen to be covered with as many leeches as would cover it; following this up with liberal use of calomel and opium. Speedy amelioration of the symptoms followed, with subsequent recovery. The opium, to do good, must be given in doses to get the systemic effect: the patient must be more or less narcotized. Closely allied to its use in peritonitis is the service of opium in severe enteritis, where there is a paralytic condition of the muscular coat of the intestines. Here constipation from obstruction occurs. The use of irritant purgatives only serves to increase the trouble. Opium, by allowing the muscular coat to be relieved from spasm, apparently acts as a cathartic. One case of this sort comes to my mind now. A woman ate corned beef and cabbage for dinner. She probably indulged in it for dessert, and undoubtedly enjoyed it for supper, serving up what was left for breakfast. A furious abdominal pain, with obstinate constipation appeared. She was filled with irritant purgatives, all without effect. She remained obstinately constipated. On seeing her, I learned that, for the first twelve hours, she had spent the time in leaning over a chair back, pressing it into her belly. When I saw her she was on her back, with her knees drawn up. The handwriting on the wall was there, if any one would but read. The first pain was the spasm due to the cramp of the intestines, which was relieved by pressure; the second pain, intolerable in its character, was the lighting up of inflammation. The lulling use of opium and the application of leeches brought about a change. Profuse alvine discharges began. Then began a terrible struggle for life, in which the woman finally won. Castor oil, to bring away the contents of the bowel, in these cases is a pleasant non-irritant laxative, which is generally effective. In acute vomiting—hyperemesis—opium is our best remedy, especially if irritation is present. In more chronic forms, its administration should be made more reluctantly. As an anti-emetic, it is best given by the rectum, in suppository or injection. The extract of opium is soluble in water and free from narcotine, making it the preferable preparation. In irritant poisoning in the gastro-intestinal tract, opium is indicated after the antidote.

Opium is used to check secretions. In bronchitis opium checks secretion. Nature's method of curing this disease is by free secretion; so beware in giving opium in this trouble. Only give enough to relieve unnecessary and exhausting cough, never checking the cough unless it is out of proportion to the results. In ordinary cases of bronchitis it is better not to give the drug, reserving it for irritable subjects. To check the excessive secretion in diarrhœas, opium is useful, and it is often curative in its results when the exudation is excessive or is imperiling strength. It is combined usually with other agents. In dysentery it is used rather to relieve pain and tormina than for decrease of the secretions. Cold water, ice or iced water is a useful adjunct. In diabetes opium is useful. In diabetes insipidus other remedies are of service, but in the mellitus form it is imperative that opium in some form should be given without regard to the formation of an opium habit. Given continuously and in large doses, it acts on the nerve centres, checking sugar formation.

Opium is valuable as a sudorific. In the shape of Dover's powder, opium is largely used in the forming stage of muscular rheumatism, or of a "cold." In "soaking the feet"—which is a domestic term for a pedilurium—we find we have a valuable aid to sudorific remedies. The patient is undressed; his limbs are immersed to the knees in hot water simply, or water containing mustard flour. In five minutes, more water, a little hotter, is added until the expiration of twenty minutes. Then the patient is bundled off to bed. Previously a Dover's powder has been administered; and on being placed in bed, the patient should drink one or two tumblerfuls

of a very hot and strong lemonade, containing one, two or three tablespoonfuls of whiskey or brandy. Care must be taken to avoid any exposure for a day or two. Anointing the skin with the oil of sweet almonds or some other bland fat appears to have some power in preventing the deleterious effects of cold after sweating.

In the administration of opium, each preparation has its peculiarities. The pill of opium, kept in the drug store for any length of time, dissolves out slowly in the alimentary canal. It should, therefore, never be used to produce a profound constitutional effect. On the other hand, for this reason many practitioners prefer this form for action on the intestines; the pill reaching this point practically unaffected. Paregoric should never be given except when its constipating influence is desired. Children bear opium badly. Never give more than one-third of the dose for children as indicated by Young's rule. Never press its use, as in the adult, lest there be developed a tendency to sudden collapse; or to convulsions.

Chronic opium poisoning—commonly called the opium habit, deserves our attention. I believe that it is much more common in the extreme Western States than it is with us. It is far worse than the alcohol habit. There is nothing diagnostic about the symptoms. There is, perhaps, perpetually a little ill-health, without apparent cause. The symptoms are bizarre and irregular. There is haziness about the patient's actions; his normal sense and faculties are clouded; he is given to false statements or to prevarication; in other words he is a great liar. Never imperil your reputation by endeavoring to treat such a patient unless he is so placed that you have entire charge of his life. *Habitués* will come to your office and swear they are not touching a grain of opium; they will gladly pay you big fees; and yet all the time they are revelling in the drug. They will corrupt nurses and attendants by bribery if placed under surveillance. There are three ways for the withdrawal of the drug: first, taking it away at once; second, withdrawing it in from five to ten days; and, third, taking months for its removal. If it is done abruptly there is danger of collapse, excessive malaise, insomnia, complete loss of appetite, vomiting, terrific diarrhœa and general checking of secretions. When seven to ten days is the limit set for its withdrawal, I have never seen a case that produced symptoms that could not be controlled. The slow method, I believe to be uncertain in its results. Proper feeding is of great service in relieving distressing signs. The use of electricity is good, not only for its effect on the system, but also to distract the patient's attention from himself. Massage serves the same dual purpose. For the diarrhœa, bismuth and carbolic acid are the best remedies. External warmth, hot drinks, broths, stimulating easily-digested food, are indicated. Bromide of potassium, quinine, etc., can be employed as needed. In withdrawing the drug it is better always to deceive the patient as to the quantity of the drug which he is getting. There are various methods for this purpose. When the morphia is taken hypodermically, it can be gradually replaced with distilled water in the injection. When morphia is taken by the mouth, make it up with quinine; this disguises the taste, rendering it impossible for the patient to judge the amount he is receiving. Quinine is an excellent tonic, the powders are kept the same size, quinine gradually replacing the morphine. I had a lady sent me who was taking paregoric. Here we had a mixed habit. She was drinking three pints of paregoric a day. This is equivalent to about a pint and a half of brandy. I ordered her a bottle of paregoric of large size. The druggist also made a similar bottle of paregoric, only the opium was left out. As fast as she drank the regular paregoric the bottle was kept filled from the spurious preparation. In this way the opium was practically out of her bottle in a week's time.

COMMUNICATIONS.

TREATMENT OF GANGRENOUS WOUNDS AND DISEASES.[1]

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Many years ago before the late war I determined to institute a series of experiments to ascertain the capability of local and general treatment of all gangrenous wounds and diseases that came under my care either for the prevention or for the arrest of the extension of gangrene.

[1] Synopsis of a paper read before the Southern Surgical and Gynecological Association, at Atlanta, Ga., November, 1890.

The object was to find local agents possessing active properties as stimulants of vital action in the affected parts, also as means of disinfecting and deodorizing gangrenous sloughs, and of hastening their final separation, and the establishment of a healthy basis for granulation. In cases coming under my care I found the old deodorizers fail to accomplish these objects. I then employed a concentrated solution of zinc sulphate and dilute sulphuric acid as a local application which seemed to meet all the requirements. The first case in which it was applied was in the following formula.

℞ Zinci sulphatis . . . . . ℥i
Aquæ . . . . . Oi
Acid. sulph. dil. . . . . f℥ss
M.

After the free application of hot water, the solution was applied every three hours on raw cotton. In the course of two days the sloughs separated rapidly, leaving a perfectly clean, healthy basement for granulation. This solution evidently possesses active antiseptic properties. It is an admirable deodorizer, it is clean and it cleanses the parts effectually.

In cases of great loss of sensibility in the parts, weak circulation and reduction of vital action, I know no agent better calculated to arouse nervous activity and dormant vitality; for as soon as the sloughs are removed and the living tissue is exposed, it gives rise to intolerable pain. I have used this solution with benefit in all forms of gangrenous affection and wound, some limited, others extensive and associated with septicemia. It possesses no caustic property, and it contracts and shrinks the sloughing tissues rapidly, while its action on the living tissues is to stimulate renewed action and sensibility where the capillary circulation is languid, the vaso-motor action sluggish, the circulating blood about to become stagnant.

During the late war I had frequent opportunities of using this preparation, and since that time also. It was cheap, abundant, easy of application and exceedingly cleanly, and did good service in my field hospital practice in the Confederate Army.

Another most admirable antiseptic, disinfectant and stimulant of vital action, found by me invaluable in the local treatment of gangrenous affections, is bromine in solution. In cases of infectious gangrenous inflammation such as hospital or gangrenous erysipelas, where the process is propagated by an infection, bromine is especially applicable, as it destroys the infection, subdues the peculiar infectious inflammation and in this manner prevents mortification. However we may differ in regard to the peculiar nature or form of infection that causes gangrene of the infectious variety, it is a fact well established that bromine is one of our best correctives. I have in too many instances seen it correct sloughing wounds and diseases, by subduing inflammatory action and destroying the infection to doubt it for a moment. I have used these different preparations alternately with benefit.

I have used, advantageously, hot-water applications from 110° to 120°, made to the parts for fifteen minutes every one or two hours. Sterilized water at this temperature is grateful to gangrenous parts. Cool applications are unpleasant, because of the chilliness they impart. In one of my cases the patient was not satisfied when the water was below 130°

I have used hot water on unhealthy wounds, with feeble circulation and reduction of neurosis and vaso-motor action, before or after the development of sloughing, for more than forty years, both in civil practice and during the late war in field hospitals. I saw this practice thoroughly applied and tested in the surgical practice of my preceptor, the late distinguished Dr. Benjamin W. Dudley, of Lexington, Ky. He applied hot water, that had been boiled and then reduced to the proper temperature, to all wounds of an unhealthy character and to all sloughing affections and always with benefit.

I have repeatedly seen Dudley apply hot water that had been boiled and reduced to 105° to the eye in cases of violent purulent ophthalmia, with the effect of subduing the engorgement and inflammation and of preventing that most untoward misfortune, sloughing of the cornea. This was more than forty years ago. I have never seen sloughing of the cornea where this method was faithfully carried out.

One of the chief objects in treating gangrenous affections and wounds is to improve the condition of the blood, to strengthen the circulation and to counteract the tendency to collapse. Hence the importance of general sustaining treatment. An abundance of nutritive food, alcoholic stimulants, invigorating and vitalizing remedies I have seen, in army and private practice, tide over forlorn cases, that would otherwise have died. Gangrenous patients—provided

the stomach is in good condition—can take large quantities of alcohol with benefit. I have given ten grains of carbonate of ammonia and two ounces of whiskey every one or two hours with marked benefit in establishing reaction in the threatened collapse from gangrene, and in pyemic fever. In those cases of gangrene arising from embolism or thrombosis I have found carbonate of ammonia, strychnia and nitro-glycerine with iron the best combination for establishing a collateral circulation in connection with alcoholic stimulants and nutritious food. In cases occurring during recent years in my practice, I have found nitro-glycerine, in connection with the remedies mentioned, do well. I have observed in sloughing affections that as soon as disinfection of the diseased tissues by the action of bromine or the zinc and sulphuric acid solutions has been effected, the condition of the general system responds promptly and not before. Hence in treating the sepsis of gangrene we must ever be active in cleansing, disinfecting and stimulating the vital action at the seat of the local lesion.

The following cases are examples of what may be effected by the treatment of gangrene by the method just described.

Case 1. Gangrene of the external genitals in the female. I was called to see this patient many years ago. She was a married woman in indigent circumstances. The patient had been delivered by a midwife about a week before. The entire external genital organs, from the mons veneris to the perineum, or very nearly to the anus, including the labia, nymphæ and fourchette, were in a state of gangrene. The organs were enormously swollen, black and pultaceous, and emitted an ichorous discharge that filled the apartment with an intensely fetid odor. In this case hot-water applications were made, at 120°, every three hours, and after each application the saturated solution of sulphate of zinc and dilute sulphuric acid was applied on raw cotton to the parts. The tincture of iron, stimulants and nourishment were administered freely. In forty-eight hours the gangrenous parts had separated and sloughed off, leaving an entirely clean, healthy surface, ready for granulation. All offensive odors had disappeared and the serious symptoms of septicemia, which threatened the patient, subsided in due time.

Case 2. Hospital gangrene of the foot. This was a sequel of a severe gunshot wound, causing an extensive lacerated wound and shattering all the metatarsal bones. This patient, when brought into his field hospital, after one of the great battles near Richmond, had all the symptoms of gangrene, which was rapidly extending towards the ankle. Hot-water applications were made every two hours, and the foot was enveloped in raw cotton saturated with a solution composed of sulphate of zinc, ℥j; water, Oj; dilute sulphuric acid, f℥ij. This was reapplied every three hours. Stimulants, nourishment, iron, quinine and carbonate of ammonia were prescribed. Although the patient's strength was greatly exhausted and he had symptoms of pyemia, he rallied, the gangrene ceased, the sloughs shrivelled and separated, the offensive odor subsided, and a healthy basis remained. The extensive wound finally healed.

Case 3. Dry gangrene of the foot. The patient was a man, 56 years old, whose foot became inflamed, swollen and painful from probable contusion of the popliteal artery, as no pulsation could be detected in the tibial or perineal arteries. The patient had been subject to carbuncles, the probable cause of thrombosis. The gangrene covered the entire foot and toes, except the plantar surface. The general condition of this patient was bad, his pulse was feeble and frequent, and his complexion sallow. There were rigors and fevers daily, with copious night-sweats, great depression of mind, and total loss of appetite. After the various gangrenous tissues, including the skin, muscles and tendons, down to the periosteum had been dissected away, this was found to be gangrenous also. Neither Surgeon-General Hamilton, who saw the patient, nor I could detect pulsation in the arteries below the popliteal. Hence the inference was made that there existed embolism of that artery, and that a feeble collateral circulation existed below that point, not fully capable of supporting the limb. Dr. Hamilton thought amputation would be necessary. But the patient was given the full benefit of conservative surgery. He was ordered the tincture of the chloride of iron, in thirty-drop doses, the hundredth of a grain of strychnine, the same quantity of nitro-glycerine, and three grains of quinine every three hours for the purpose of arousing vaso-motor action, establishing a better collateral circulation, and arresting the gangrene. He took also an abundance of stimulants and nourishment. The concentrated solution of zinc sulphate and dilute

sulphuric acid was applied to the gangrene, also frequent hot-water applications at 130° to the parts. The aspect of the gangrenous parts improved under this treatment, but at certain points where the sloughs had separated the solution excited intense pain, and its use was discontinued. A solution of bromine, containing f℥ij to the pint of water, was substituted. The bromine application was exceedingly soothing, and acted as an admirable antiseptic, disinfectant and stimulant of vital action. The gangrenous inflammation was duly subdued; the local infection was corrected, and the extension of the gangrene was arrested. When all the sloughing tissues had separated and been thrown off, a clean base was left, with a fair degree of circulation. But a portion of the tarsal, and all the upper surface of the metatarsal and phalangeal bones was exposed. Under the local and general treatment, granulation developed rapidly, healthy, vigorous and full of florid blood, indicating, if the conjecture was correct, that a sufficient collateral circulation had been established to arrest gangrene and repair damages. All the exposed bones were finally covered with newly formed tissue and the large wound healed perfectly. But it appeared subsequently that at several points, more particularly the articular surfaces of the formerly exposed bones, there was necrosis, causing ulceration of the newly formed tissue. To these points of necrosis, applications were made daily of dilute muriatic acid of the official strength. This has been my method of treating necrosis of bone for some years, and the results have been good. It is surprising how rapidly the phosphates and carbonates of lime in the necrosed bone are converted into the soluble chlorides, and disintegrated and dissolved by the action of the acid. After disintegration of the bone at these points, granulation would again form and heal over the opening.

Case 4. Phagedena. This was a case of gangrenous phagadena from chancroid. In this case there was gangrene of the prepuce, of the glans penis and skin on the dorsum. The general condition was bad. The local treatment consisted in frequent hot-water applications, followed by a solution containing zinc sulphate, ℥i; water, a pint; dilute sulphuric acid, f℥ii. The patient took internally thirty drops of tincture of iron and five of muriatic acid every three hours, with stimulants and nourishment. In the course of two days the offensive odor had ceased, the gangrene had been arrested, the sloughs were cast off, and a healthy base was exposed. The glans, prepuce and skin on the dorsum sloughed off, and the parts healed ultimately.

Case 5. Gangrenous carbuncle. The carbuncle in this case was very extensive, covering the entire back of the neck, from the scalp to the sixth cervical vertebra. The entire mass of tissue became gangrenous down to the spinous processes of the cervical vertebræ, including the muscles and tendons. The patient lost the power to a considerable extent of extending the neck. A solution consisting of sulphate of zinc, ℥iss; water, a pint; dilute sulphuric acid, f℥ss, was applied on absorbent cotton every three hours; and, as the condition of the patient was extremely prostrated, tincture of iron, quinine, strychnia and nitro-glycerine were given every three hours. The local and general treatment enabled the system to arrest the gangrene, throw off the sloughs and finally to heal the large deep cavity.

In conclusion, I would urge discrimination in the adaptation of the method of treatment adopted in gangrenous affections to the variety, form and origin of the disease. There are types of gangrene purely septic in origin, in which the sublimate dressing is thoroughly applicable. There are other cases, such as hospital or camp gangrene or gangrenous erysipelas, in which the bromine treatment surpasses all others. Then, also, there are cases of either a traumatic or idiopathic form, in which the vital and vaso-motor functions of the parts are paralyzed and there is no tendency to establish the line of demarcation, and the tissues are rapidly broken down. Here a potent stimulant to vital action is needed, as well as an antiseptic, such as the strong solution of zinc sulphate and dilute sulphuric acid.

CARE OF THE INSANE IN NEW YORK.—Since the murder of Dr. Lloyd by a lunatic, a new order by the State Commission in Lunacy states that no insane patient in the custody of an institution must be allowed to go out on parole who, in the medical superintendent's judgment, is dangerous to himself or to others; that no parole shall be granted for a period longer than thirty days; and that, on the escape of a patient, prompt and vigorous measures must be taken to secure his return.

ANTISEPTIC MIDWIFERY.[1]

BY A. S. MAXSON, M. D.,
MILTON JUNCTION, WISCONSIN.

The antiseptic treatment of the puerperal condition originated from antiseptic surgery and has developed with equal rapidity. Although the statistics show a remarkable progress in the reduction of puerperal septicemia, many an excellent practitioner is rather skeptical regarding the method. Dr. Leopold reports, out of three thousand one hundred and ninety-six women confined in the Dresden Hospital between May 1, 1884, and Sept. 1, 1886, four deaths from septic infection, or .12 per cent. Dr. Invoeffs, from Moscow, reports seven hundred and fifty-six labor cases, with no death from septic poisoning. In the Russian, German, Bohemian and Austrian hospitals, the septic death rate was 1.3 per cent. between 1874 and 1884; but since 1884 it has diminished to .42 per cent. During the year 1888, four hundred and sixty-six women were confined in the Boston Lying-in Hospital, with the death-rate of but one from septicemia, or .22 per cent.

The use of antiseptics in private midwifery practice in Germany is compulsory by law. Cullingworth says that "puerperal fever, both in its fatal and non-fatal manifestations, may be practically stamped out." Of course, the method of working must depend upon a correct understanding of conditions and methods of infection.

A. Döderlein, of Leipsic, has made a very important experiment regarding germs in the lochia of normal puerpera and the septic condition of young mothers. He says: "Under normal conditions the lochia from the uterus contains no fungi, while that from the vagina contains numerous germs of different kinds. The lochia from the uterus can, under normal conditions, be injected into animals without producing any reaction, while that from the vagina may produce abscesses. The existence of germs of any kind in the puerperal uterus will, as a rule, cause elevation of temperature. After the temperature has fallen, it will be found that the lochia from the uterus is again free from germs. . . . The lochia from the uterus of fever patients will produce appearances of infection in animals. Only in those cases where there are so few germs that the febrile disturbance is slight will the lochia produce no effect in animals."

As to the kind of antiseptic used, there is much diversity of opinion. Corrosive sublimate, one of the most efficient germicides, has caused poisoning in a number of instances. I feel, as Dr. Wm. L. Richardson says: "While many authorities are willing to admit the superiority of corrosive sublimate as a germicide, not a few, however, hesitate to recommend its adoption in general practice, owing to the danger of mercurial poisoning." From the sublimate vaginal douche, Maurer has reported death. Dr. Emile Blanc is quite apprehensive regarding the sublimate vaginal douche, but still thinks best to continue its use except in cases of post-partum hemorrhage, renal disease and anemia, where it should be displaced by carbolic acid. The strength of the sublimate injections has, from the time of their introduction, been gradually reduced in strength by Stadtfeld and Sänger and others from 1 in 1,000 to 1 in 2,000, then to one in three or four and, now five thousand, with one in eight thousand in post-partum hemorrhage, etc. The *Annual* of 1890 reports twenty-two cases of sublimate poisoning.

The danger of poisoning has been sought to be obviated by a post-sublimate injection of a 2 to 3 per cent. solution of carbolic acid, or by pressing the perineum down, so that all the sublimate injection will run out, or by turning the patient on her side or raising her up. All these means are recommended by renowned men. Fearing the possible effects of active poison in vaginal or uterine injection, and considering their inconvenience, I diverged from the path of my fellow-practitioners. I have recently found that others have done likewise, but used different medicines. Two years ago I used corrosive sublimate, 1 to 2,000, or carbolic acid, 2 per cent., for vaginal injection both before and after delivery. This I followed with antiseptic pads made out of napkins dipped in 1 to 1,000 sublimate solution and dried. In from one-half to two-thirds of the cases the lochia would remain without putrefactive odor throughout the course of the puerperium, and there would seem to be no fever.

Still fearing my injections, and being dissatisfied with their results, I used a creoline injection of 1 per cent. mixture, either just before, or before and after labor, and sopped

[1] Read before the Central Wisconsin Medical Society, Sept. 30, 1890.

the vulva with creoline mixture once in from six to eight hours, and used sublimate cotton on the napkin next to the vulva. The results have been quite satisfactory to both patient, nurse and myself. The lochia has remained free from the odor of decomposition throughout its course. The temperature has remained normal to within one degree. The rise of temperature does not always depend upon septic poison or inflammation, for I have noticed some cases to have a rise of one degree or less immediately after labor, and in twenty-four hours the temperature was normal.

CASE OF A HERMAPHRODITE.

BY D. J. TILLOTSON, M. D.,
BUFFALO, N. Y.

To the embryologist and the anatomist there is probably nothing in the line of human monstrosities of greater interest than the hermaphrodite, true or spurious; but the physicians of the present time have hardly given this subject as much attention as did those of the past, and it would seem that, with the increased power of observation given us by the microscope and the many new rays of light that have been thrown upon the subject of embryology, the entangling of that group of cells in the embryo which eventually become the internal and external genital organs would prove a subject of which much might be learned and written from both a demonstrative and a speculative point of view.

In the history of noted cases of hermaphrodites, much that is interesting has been related; and, aside from the popular interest attached to these individuals, we may learn much that will guide us in our advice regarding infants born in this condition. In these cases our opinions are asked when we least expect it, and our conclusions must be arrived at quickly. These conclusions often decide the future of an individual, and should our decision chance to be wrong, in after years it may humiliate the family and the person, and ruin the reputation of the physician in that community; for what woman would employ an obstetrician who would be guilty of incorrectly diagnosticating the sex of her child?

It is not the object of this article to dwell upon the whole subject of hermaphroditism, but to present and describe one case, which the writer was called to see within a month after his graduation in medicine.

On April 26 I was called to attend a boy said to have colic. I found my patient to be a child four years old, bright, and to all outward appearance a vigorous, healthy boy. He had a disposition when well to romp and play and to engage in boyish sports. In figure he presented all the characteristics of a boy of his age. He had a large head, heavier features than a girl of same age, broad and square shoulders, full chest and a pelvis narrow in comparison with the shoulders. I think one would be inclined to pronounce it of the male rather than of the female type.

On raising the little fellow's shirt, to palpate his abdomen, I discovered the state of the external genital organs, and made a thorough examination of the same. The mons veneris was very prominent, broad and rounded, and contained an abundance of adipose tissue. After careful search in the regions of Poupart's ligament, neither inguinal ring, spermatic cord, testicle nor ovary could be found—the result in that direction being perfectly negative. From the mons, two ridges covered by integument extended backward and downward exactly like labia majora, fading away before they reached what would be the posterior commissure and *fourchette*. These were covered by true skin, except on their inner and upper portion, which was true mucous membrane. Upon careful manipulation of them nothing was revealed but the characteristic feel of adipose tissue. From between the labia, and from the normal position of the clitoris, protruded an organ which was one and one-half inches in length in the flaccid state, and two inches long during an erection. At the proximal end it was half an inch in diameter, triangular in shape, gradually tapering to the distal end, where it was the size of a slate pencil. About two-thirds of this organ was covered with true skin, which was movable, but not to the extent of that of the normal penis. The outer third was covered with what was probably originally mucous membrane, but had become thickened, presumably by friction on the clothing. It was dull red in color. There was no glans, no prepuce, no corona. On the tip it was perfectly smooth, even possessing a notch or dimple where the meatus urinarius would naturally be, if the organ were a penis.

This organ was oval in shape—its anterior

two-thirds being flattened on both superior and inferior surfaces, and was evidently made up of corpora cavernosa. About one-half inch from the body, and on the inferior surface, was a slit about four lines in length, and it was through this opening that the child urinated. Only as far as this slit could the corpora spongiosum be felt. The child was unable to urinate in the standing posture without soiling its clothing, and insisted upon assuming the squatting position when passing water.

Between the labia, and below this penile organ, was nothing but a slight concave surface, covered also by true skin, which over its whole extent was dense and resisting to the touch and appeared to be of the same structure and a part of the perineum. Along either side of this clitoris, or penis, and for about one-half its length and extending over on to the internal aspect of either labium, was a row or line of small nodular bodies, reminding one of the carunculæ myrtiformæ. It occurred to me that these might be the remains of some structure which had at some time been removed; and, on questioning the mother, she said a doctor had cut something which he said would make the child "all right." But the mother could not tell what was cut. From the position of these ridges I should judge the organ had been bound down by some membrane, and was released by the operation, or that a structure analogous to the nymphæ or labia minora had been cut away.

An examination per rectum, to try to detect the internal arrangement of the organs, could not be obtained.

In presenting this, my first medical article to the members of the profession, I beg their indulgence, which I know they will willingly grant. This case being one of my first, and believing it to be of more than ordinary interest, I decided to give it to the profession.

I wish here to acknowledge the kindness of Dr. A. M. Ross who is ever ready with pencil and pen to aid in the advancement of the cause of medicine.

Can any operation benefit this child?

CHOCOLATE LAXATIVE.

℞	Powdered cocoa	℥j
	Sugar	ʒij
	Castor oil	f ʒj
	Vanilla	q. s.

M. Make pastilles No. xii.

CASE OF TROPHIC AFFECTION OF THE THIRD PHALANGES.[1]

BY E. H. COOVER, M. D.,

HARRISBURG, PA.

On October 22, 1890, Mrs. D., thirty-six years old, consulted me about a very singular affection of the third phalanges of both hands. After a careful examination of the case, I admitted to her that her condition was both peculiar and new to me. Two days later she consulted me again. Just as she came in the office I was reading, in the *Journal of the American Medical Association*, October 18, 1890, an abstract of a paper by Rosenbach on an "undescribed trophic affection of the third phalanges," taken from the *Centralblatt für Nervenheilkunde*, August, 1890. Rosenbach claims to have discovered a hitherto undescribed trophic disturbance in the third phalanges. My case is a typical one, as described by Rosenbach, who says: "The disease consists essentially in an enlargement of the tubercle at the base of the phalanx, preceded and accompanied by pain in the part." Rosenbach says the disease is found almost exclusively in women from 30 to 50 years old, and is especially frequent in those approaching the climacteric. He has seen one or two cases in men, but it is relatively very infrequent in them as compared with the number of cases occurring in women. The disease, he says, is usually symmetrical, attacking both hands in the same way, and it confines itself strictly to the dorsal side of the third phalanx, the thumbs always remaining sound. It is preceded and accompanied by changes in the sensibility, formication, heat flushes, numbness, etc., in the region of the ulnar and radial nerves. In my case the joints are enlarged, the dorsal muscles of the third phalanges are atrophied, although the skin has a perfectly normal appearance. The radial and ulnar pains often extend to the elbows. There is some difficulty in grasping and holding small objects, unless the patient is looking at them; as soon as she turns her eyes from the objects held, she is liable to let them drop. The thumbs are not affected.

Rosenbach attributes the affection to trophic disturbances in the nervous supply of the periosteum, similar to the special

[1] Read before the Dauphin County Medical Society, November, 1890.

changes in the nerves of the skin, found in herpes. The differential diagnosis lies between arthritis deformans and gout. The first is distinguished by a very different localization—in the large joints and in the thumb, by the irregularity of the swelling, and by the involvement of the joint's surfaces, which remain free in the trophic disturbances under consideration. Gout is less easily differentiated; but we have the general diathesis, and above all the slow increase in the enlargement, without redness or swelling of the parts; while the peculiar local nervous symptoms are wanting.

The case which I saw was to me both peculiar and interesting, and as such I give it to the profession in general.

In regard to the treatment—I first administered tincture of nux vomica, and the improvement was slow. I then gave the patient nux vomica and phosphorus, which improved her condition more rapidly. With this medication, combined with a good nourishing diet, and the avoidance of severe muscular exercise, the patient's hands are growing steadily better.

New York Correspondence.

NEW YORK LETTER.

New York Academy of Medicine.—Ankylosis of Jaw.—Gonorrhœa and Stricture at three years of age.—Remarkable Extra-uterine Pregnancy.—Peritonitis in Infancy.—Rare Fracture of Clavicle.—Applying Plaster Jacket.

The Section work at the New York Academy of Medicine during the week ending November 15, presented several points of interest. In the Section on Surgery the Chairman, Dr. Robert Abbé, showed two patients upon one of whom he had operated ten years ago for anchylosis of the jaw. The result had been restoration of the function, immediate and permanent. His second case was that of a young woman who, for fourteen years, had been unable to move her jaw, food being pressed into the mouth through the gap left by two absent incisors. Dr. Abbé hoped to get good results from operative interference in this case also, but thought that the only method worthy of adoption was to cut down from without and remove a wedge-shaped segment of the inferior maxilla. This would ensure a good false joint.

Dr. Abbé also reported a case of gonorrhœa in a boy three years old, followed by tight urethral strictures six months later, requiring internal and external urethrotomy. The patient, an otherwise healthy child, was brought to him suffering with incontinence of urine, pain in the urethra and a slight discharge resembling gonorrhœa. Nine weeks before, the child had been tampered with by a young woman, who had been rescued from the streets and given occupation in the house of the child's parents. Within two weeks, he had a swollen penis, urethritis, incontinence and pain. The child was treated by urethral irrigation of a 1:8,000 bichloride of mercury solution. Gonococci were found in the discharges. Cure had followed in a short time. Six months subsequent to his being sent from the hospital cured, his mother had noticed him in great agony vainly trying to pass water. He was again brought to the hospital, when his urethra was found impassable even to the smallest instrument. His bladder was aspirated and about one and a half pints of urine was withdrawn. Aspiration was repeated until the third, when examination under ether showed three anterior strictures and one tight one at the membranous portion of the urethra, the latter only just admitting a filiform bougie. The strictures were dilated gently, but the deep one was so dense that urethrotomy was resorted to. The anterior ones were cut up to No. 22, French, with the Otis urethrotome. It was found to be a tough gristly stricture. Perineal drainage we continued for two days, when a No. 24 was found to slip painlessly into the bladder. After the seventh day all the urine had passed through the natural channel.

Dr. W. W. Van Arsdale said he had met with a great many cases of what he believed to be gonorrhœa in very young children. He had seen three during the past month. The youngest child was ten months old, the other two were one year, and four years, respectively. When it was remembered how the families of these children were crowded together, it would readily be understood how great was the chance for infection. The disease was quite difficult to treat, because of the smallness of the urethra. One troublesome feature was that the external parts became eczematous, owing to the accumulation of the discharges; and this was apt to lead to stricture of the meatus.

Dr. T. H. Manley reported a remarkable and unique case of ectopic pregnancy, presenting specimens, and introducing the patient from whom these had been removed. He said he had been called to see this woman after she had been under the care of two other physicians. The clinical indications were those of septic invasion resulting from peritonitis. In the region of the iliac fossa on one side there was a protrusion, which on palpation suggested the presence of pus. The history elicited was, that for about four months the patient had considered herself pregnant and had noticed nothing abnormal to this condition. She had, however, recently fallen over some loose planks left by builders on a sidewalk. Quickly supervening upon this accident had come a train of symptoms which had culminated in the condition in which the patient was found by Dr. Manley. There was high temperature, rapid and feeble pulse, tympanitis and suppression of urine, stoppage of bowel action and great prostration. Laparotomy seemed the only thing to do, and even this the operator had undertaken most unwillingly. On cutting down over the protrusion—instead of pus, blood clots were found. On these being cleared away, a fetus was discovered, but no placenta. Following the cord, it was found that this stretched across to the opposite side, and that there was the placenta. The fetus and secundines being removed, the cavity was flushed with warm water and drainage established through Douglas's *cul de sac*. The patient made an uneventful recovery and was now presented in fair health, and but little disfigured by the resulting cicatrix. Dr. Manley thought that this was the only case recorded of rupture of a previously unrecognized ectopic pregnancy by a traumatism.

Dr. J. Lewis Smith read a paper in the Pediatric section on peritonitis in infancy and childhood. Peritonitis, he said, was likely to occur at any age, but the most interesting and fatal form was that which occurred in the newly born. In this form there was no doubt that microbes played an important part in the etiology; the septic matter entering the system through the umbilicus, usually from the use of foul dressings, foul fingers, and so forth. Umbilical inflammation, with perhaps ulceration, and the formation of a phlegmon might occur and septic matter be taken up by the umbilical lymphatics or blood-vessels, and carried into the system. Peritonitis occurred in infancy and childhood from a variety of causes, such as extension of inflammation from the abdominal walls, or of the viscera, septic infection, chronic degenerative disease of the kidney, and cheesy degeneration of the mesenteric glands, which sometimes gave rise to inflammation in the portion of the peritoneum covering them. It was now known that a considerable number of diseases which were formerly supposed to be due to taking cold were caused by microbes. There was too great a tendency at the present time to ignore thermal changes in the atmosphere, or exposure to cold as a cause of disease. Intussusception and appendicitis was an occasional cause of peritonitis. It also often followed trauma of the abdomen. Children less frequently than adults had ulceration of Peyer's patches in typhoid fever, but it sometimes occurred, ending in perforation or rupture and fatal peritonitis. Quite a number of cases had recently been reported showing the microbic origin of peritonitis in certain instances. Some of the cases were affected by accidental inoculation, and others were due to inhalation of sewer gas. Experimentation had proven that to produce purulent peritonitis, it was necessary to exhibit pus-producing organisms, and irritants and non-pathogenic germs did not produce peritonitis, even in ever so small degree. Tubercular peritonitis was much more frequent in infancy and childhood than in adult life. The symptoms were more or less characteristic, and only when co-existing with some other disease was there any difficulty in making a diagnosis. Tenderness on pressure, pain, temperature, and position of the patient were the symptoms usually looked for in peritonitis. There was generally gaseous distention of the intestines, sometimes so great as to carry the apex of the heart upward. The liver and spleen were also pressed upward and backward. The displacement of these organs allowed the distended colon or portions of the duodenum or jejunum to lie in front of them, thereby changing the normal dull note on percussion for that of tympanitic resonance. Constipation was usually present in the early stage. Vomiting was a common and painful symptom. The pulse was accelerated, frequent and small. The countenance was anxious, but the mind was clear, or there might be mild delirium, with incoherency of speech. Retention of

urine was common. The relative proportion of the different inflammatory products varied greatly in different cases, and in all, not only were serum and fibrin present, but pus corpuscles could be detected under the microscope. The fibrinous exudation upon the peritoneal surface occurred either in patches, or continuously over a considerable part of the visceral peritoneum. It was prone to form a covering of various thicknesses over the large and immovable organs. Adhesions frequently took place between the intestines and viscera, producing disastrous results. Peritonitis in children was always a grave disease, in most instances its progress was towards a fatal termination. Prophylaxis and removal of the cause, Dr. Smith said, was probably the best way to deal with these cases.

Dr. Vaughan has recently had a case of fracture of the clavicle in that rare locality, near the sternal end. A very good result was obtained from pressure by means of pads and strips of adhesive plaster.

A convenient way of putting on the plaster-of-Paris jacket in paralytic cases has recently been described by Dr. John Woodbury when presenting a patient who had sustained fracture in the dorsal region, operated upon for cord pressure by Dr. McBurney. He folds a strip of cheese cloth so as to make a hammock about twenty feet long, four thicknesses, swung so that it can be tightened to any required degree. On this the child is laid, belly down, slits are cut to pass the hands and legs through, also one for the face. Two assistants now lift the hands and legs, the required degree of extension is made, and the plaster-of-Paris is applied over a knit shirt and around the hammock. The ends of the hammock are cut off when the jacket hardens. In the case operated upon by Dr. McBurney, thickened laminæ and spinous processes were removed, the dura being found normal was not opened, paralysis gradually disappeared, control was gained over the bladder and rectum, and the little patient when presented was able to walk.

IODOFORM AS A SUBSTITUTE FOR LUGOL'S SOLUTION.

Ernest Besnier prescribes iodoform for scrofulous infants, in the following formula:

℞ Iodoformi . . . . . gr. iss
Mellis . . . . . f℥iv
M. Sig. Dessertspoonful at a dose.

PERISCOPE.

Counter-Extension at the Knee.

Dr. Henry Ling Taylor, of New York, read at the meeting of the American Orthopedic Association, Philadelphia, September 16, 1890, a paper describing a good method of securing counter-extension at the knee-joint. As reported in the *Boston Medical and Surgical Journal*, October 16, 1890, he said:

"The patient being put to bed, the first step in the dressing is the application of adhesive plasters to each side of the leg and thigh. To get a firm and even grasp of the limb, we use a three-tailed or five-tailed plaster made as follows: four pieces of yellow adhesive plaster, about an inch and a half wide and eight inches long for an adult, having firmly sewed to one end a piece of webbing six inches long, and two strips of rubber plaster three-quarters of an inch wide and about twenty inches long, in such a manner that the webbing prolongs the yellow plaster, while the strips of rubber plaster make with it an angle of sixty degrees, as seen in the cut. We now have four three-tailed plasters with webbing attached. Two of these are applied to the leg below the knee, one to each side, the webbing starting about four inches above the ankle and falling towards it; the narrow strips of rubber plaster are wound spirally around the leg, slanting towards the knee. The two remaining three-tailed plasters are similarly applied to the thigh, the webbing starting a few inches below the level of the crotch and falling towards the pelvis. When in place, the plaster is retained by a light bandage; it is thus seen that when the four ends of the webbing are doubled on themselves and buckled over the edge of some form of fixation splint, reaching beyond the plaster in both directions, traction is exerted upon the knee both above and below.

"It is necessary to apply the plasters to the leg and fasten the webbing to the splint in such a manner that no prying or twisting force falls upon the knee, or pressure will be increased instead of relieved. The splint must be rigid to provide fixed points for the traction, and must immobolize the knee laterally and antero-posteriorly, without pressing upon the joint. If flexion is moderate, two straight strips of wood like laths or window-shade sticks, cut the proper length and provided with buckles near each end, will

do very well. The strips are well padded with cotton or folds of fabric above and below the knee and at the ends and securely fastened in place each side of the limb by bandaging them together over the top of the thigh, behind the knee and above the ankle; after this additional bandages may secure the whole. We now have to draw the pieces of webbing over the ends of the side splints as tightly as we wish, and fasten them into the buckles provided. Our simple counter-extension splint is now complete, but it is usually desirable to attach five or six pounds to the lower end of the apparatus by the ordinary cord, pulley and stirrup arrangement, the knee being carefully propped and supported in the flexed position by hard cushions or in a sling. If much flexion is present, a tracing of the leg should be taken on paper, and wooden side-splints with a corresponding angle and perhaps hollowed at the knee, can be prepared by the carpenter. This dressing has worked well and given prompt relief in a number of cases, but it occurred to me last summer that the ordinary plaster-of-Paris splint, reaching from above the ankle to near the crotch, might be utilized for the same purpose and prove more convenient in an ambulatory case. I have used such an arrangement with satisfaction in a number of cases, of which one was a bad old case of osteitis of the knee, with nearly ninety degrees of flexion, for whom I was preparing and have since applied, a more perfect steel splint. The plasters were applied to the limb as before, bandaged in place and the knee covered with cotton; over this was placed a light plaster-of-Paris splint with strong edges, over which small pieces of card-board were bent where the webbing was reflected. Buckles attached to bits of webbing were bandaged into the plaster on the outer and inner side of the limb at each end, and to these the plaster webbing was fastened.

"If the patient is small a stiff tin or zinc posterior splint could be bent to correspond to the angle of flexion, and turned up at the sides for lateral support and to receive the buckles near the ends. Whatever the form of apparatus we use for fixation and as a fixed point for our counter-traction, we must be careful, let me repeat, that no leverage, especially no prying or twisting force, is exerted upon the joint. If the counter-traction acts in the lines of the deformity, we should in most cases speedily get relief from pain, diminution of tenderness, heat and swelling, relaxation of the flexor muscles and an improved general condition of the patient. As the mechanical conditions are favorable, the amount of traction need not be great, not nearly so great as is required at the hip, but it should be constant, definite and in the proper direction. Even in our steel splints ratchet-traction is not required, as merely drawing the straps into the buckles by the hand gives a sufficient pull. After a few days or weeks motion will be freer; as the muscles relax the splint is straightened and counter-extension in the improved position continued. The later stages towards recovery may present indications for different management, and the ultimate result will depend upon an exact apprehension of the physiological requirements of the joint at each stage and precision in meeting their demands."

Autopsies in America.

The *Boston Medical and Surgical Journal*, November 6, 1890, says editorially:

Most American physicians realize the great advantages for promoting the advancement of knowledge which the medical profession of the continent of Europe have in comparison with us, in being able to procure and report a large number of autopsies. The report of a fatal case is not complete, and the statistics of a fatal disease are comparatively worthless without the certain knowledge which only an autopsy can give.

The fault, of course, lies in our laws, and the law is, undoubtedly, the expression of the will of the laity, and cannot be altered without a change in public opinion; but is not the medical profession also partly to blame? Is not the repugnance which is felt to autopsies in the community due largely to their infrequency? In countries where *post-mortems* are considered almost as much a necessary part of death as the services of the undertaker, very little opposition is met with, even from the less intelligent part of the community. In some European States all bodies are removed to a dead-house within twenty-four hours of death, where the diagnosis of death is confirmed, and an autopsy done. In at least one city a law exists that if any person objects to an examination, a complete autopsy must be made.

The American physician is often indifferent or careless after his patient is dead. Ex-

cept in large cities, it is difficult to undertake a *post-mortem* examination, and even where it would be comparatively easy, a busy doctor will often prefer to remain in doubt rather than undertake a disagreeable extra amount of work, and perhaps at the same time run the risk of offending the bereaved family. But every *post-mortem* that is made is so much aid in moulding public opinion, and it seems more than likely that if the medical profession as a whole should systematically request an examination whenever possible, the feeling in the community would soon change. Great assistance might be given in cities by a system which would make the details easy and inexpensive.

We already have laws demanding an autopsy in cases of suspicious death. Would it be too much too ask to have a law allowing a *post-mortem* on all patients who die in public institutions? This would be a great gain, for these cases have, as a rule, good *ante-mortem* clinical histories, and the autopsy can be held under the most favorable circumstances. The principal objections to such a law at present are, (1) a rare and indefinite semi-religious feeling connected with the resurrection of the body, in the presence of which feeling no one would want to enforce such a law; (2) the common feeling, already mentioned, of repugnance to the mutilation of the body of a relative, which is now the main stumbling-block; and (3) the fear in the public mind of *ante-mortem* autopsies. But the physician realizes that the signs of death are better understood by the pathologist than by the undertaker, and the danger of a premature autopsy is much less than the danger which now exists of premature embalming, nor is the mutilation of the body materially greater. The idea which we occasionally meet among the lower classes that the officers of a hospital take a fiendish delight in dissecting dead bodies, and rather desire the death of a patient in order to get a chance, might at first keep a few cases from going to institutions, but it probably would not do so for any length of time.

It is not necessary to discuss at length the advantages to the medical profession and to the laity of frequent autopsies, or their influence on insurance and mortality statistics and on quackery. Let us hope that before long not only will the physician know that the death certificate which he signs is absolutely true, but that the laity will prefer to know of what diseases their relatives die.

Mode of Action of Rennin and Fibrin-Ferment.

Drs. A. Sheridan Lea and W. Lee Dickinson send notes on this subject to the July number of the *Journal of Physiology*. Fick has recently put forward the view that the molecules of the clotting ferment do not require to come into intimate relationship with the molecules of the substance which is undergoing the change, but that when once the change has been set up by the ferment in any one portion of the substance, this change is propagated from particle to particle of the same without the further necessary intervention of the ferment. Their observations, on the contrary, go to prove that the mode of action of rennin and fibrin-ferment is essentially similar to that of other well characterized enzymes, as far as contact between the ferment and the alterable substance is concerned. — *Glasgow Medical Journal*, October, 1890.

Balantidium Coli.

Dr. L. A. Labrovska states in the *Bolnitchnaya Gazeta Botkina*, April 14 and 23, 1890, that cases of chronic catarrhal condition of the large intestine with presence of balantidii coli are seldom mentioned, and that from the small number of such cases which have been treated it has not yet been found how to kill the parasite rapidly. It has been found, however, that the chronic catarrhal condition of the intestine and the diarrhœa are relieved by directly destroying the parasite.

Labrovska enumerates the cases reported in literature, and in all cases apparently the results of treatment was very unsatisfactory. The patient either continued to suffer from chronic diarrhœa, or died. The *post mortem* usually showed ulceration of the lower bowel. In all cases the parasite was found during life, and especially when diarrhœa was marked. The author cites his own patient, a woman 70 years old, whose case was investigated carefully, the stools were often examined for parasites, and the effects of the drugs administered was watched during a period of several months. The patient had had seven relapses of chronic diarrhœa, with reappearance of the parasites in the stools. Of all the drugs used the best agents were, salol, 15 grains internally three times a day, and a 1 : 1,000 solution of sali-

cylic acid by enema once or twice a day. Salol was given to have salicylic acid formed in the lower bowel, as this acid is a germicide. After this is used the number of parasites decrease considerably.

The relapses of diarrhœa after a period of two, three or four weeks, during which no parasites were detected, is explained by the probable fact that the parasites remained in the intestine in an undeveloped form during that time. At the time of mature development of the parasite gastric irritation is re-established. It is stated also that the undeveloped parasite resists more vigorous germicidal solutions.

Very large blood corpuscles, three times the normal, are also found in the stools.

The parasite is known to live in the intestine of pigs; but in the author's and other cases the mode of infection could not be discovered.

Treatment of Diabetes Mellitus.

In a paper read before the International Medical Congress at Berlin Dr. Pavy (*Montreal Medical Journal*, October, 1890), said that the first consideration in the treatment is to control by dietetic measures the passage of sugar through the system. The real point, however, to be aimed at is to restore the assimilative power over the carbohydrate elements of food, and until this has been accomplished it cannot be said that a cure has been effected, but only that the disease is held in subjection and prevented, as long as the condition can be maintained, from leading on to an unfavorable issue. What most conduces to this desired restoration of assimilative power is the maintenance of a normal state of the system by keeping it free from the passage of sugar through it, and in this way bringing a healthy condition of body to bear in helping to promote a removal of the faulty state. According to his experience, opium and its derivatives codeine and morphine are the medicinal agents which, more than any others, assist in the actual cure of the disease, by which he means a restoration of the assimilative power which has been impaired.

The influence of these agents may be witnessed in cases where the sugar has been brought down by diet to a certain point, but is unsusceptible of entire removal from the system by dietetic treatment alone. The complete removal may then sometimes be observed to follow the subsequent administration of the drug, showing that the medicinal agent has acted in the direction of exerting a restraining influence over the abnormal production, and elimination of sugar.

When cases of a favorable nature—that is, cases occurring above the middle period of life—are treated by these combined measures, and the treatment is steadily carried on for some time, it is a matter of common observation that the system of the patient becomes able to tolerate a certain amount of carbohydrate food, without its leading to the elimination of sugar. Often, with strict observance of the required treatment, the assimilative power is found to become so far re-established that a fair amount of the carbohydrate principles, or even an ordinary diet, may be taken without leading to the elimination of sugar. When this is the case, carbohydrate principles, according to the extent found to be tolerated, may be taken without occasioning harm; but the object is to keep below the point at which the escape of sugar takes place, and when this is done, actual benefit, instead of injury, is derived therefrom.

Dr. Pavy refers to the aid afforded by the quantitative testing of the urine. It is absolutely essential, he considers, in the management of a case, to possess the knowledge thus supplied, not only for the purpose of regulating the treatment according to the progress made, but also for keeping a check upon the manner in which the directions given are carried out. When in a case it is found to happen that the assimilative power has been restored, it is permissible to consider that an actual cure has been effected; but it is always requisite to bear in mind that a weak point has existed, and that it is advisable to avoid unduly taxing a power which has previously given evidence of being at fault.

Russian Institute of Bacteriology.

It is announced that a Pasteur Institute is to be established at St. Petersburg through the generosity of Prince Peter Oldenburg. The building, on Apothecary Island, is nearly completed, and will be known as the Institute of Experimental Medicine. The conduct of the studies in regard to rabies and contagious diseases generally will be intrusted to specialists in bacteriology, chemistry, biology and veterinary science.

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When it is desired to call our attention to something in a newspaper, mark the passage boldly with a colored pencil, and write on the wrapper "Marked copy." Unless this is done, newspapers are not looked at.
The Editor will be glad to get medical news, but it is important that brevity and actual interest shall characterize communications intended for publication.

IN MEMORIAM.—SAMUEL LEWIS, M. D.

The death of Dr. Samuel Lewis, of Philadelphia, removes from the medical profession in this city one of its most interesting and honored members. The outlines of his professional career will be found in another part of this number of the REPORTER; but here the Editor would pay a short tribute to the personal character of one whose friendship was a treasure and whose approval was both reward and incentive. Only those who knew Dr. Lewis personally could fully appreciate the strength and charm of his character. He was a man of unswerving integrity—a clean, straight, honest man; a man of excellent judgment; and withal a man of such kind and gentle heart that all must love him. His influence was always good, and it was safe to submit any question of personal or professional morals or ethics to the touchstone of his action; for, in matters affecting individuals or the whole profession of the country, his course was sure to be that which eventually seemed the best and wisest.

The loss of such a man is a very great loss; for he was of the kind which keep the profession from yielding too much to the excitement and strain which our time puts on all classes of men. To him older men could look with confidence that he would maintain the best traditions of the profession, and young men could look as an example of what is really best in personal and professional character. May those who are like him be preserved and multiplied!

USE OF CHLORAL IN SURGERY.

Chloral was invented in 1832 by Liebig, but it was nearly forty years later, in 1871, before it was introduced to medicine by Liebreich. Since that time it has been used extensively and its physiological action has been determined very satisfactorily. Its most characteristic effects are upon the heart and circulation, and upon the nervous system. It depresses the heart and is capable of paralyzing the vaso-motor centre; it acts upon the cerebrum directly, producing sleep, and as a depressant upon the spinal cord and medulla, finally paralyzing the respiratory centre. Locally it acts as an irritant. Its physiological actions indicate sufficiently its therapeutic usefulness for medicinal purposes. The local use of chloral, however, in certain surgical affections has not excited very wide attention. Even Germain Sée, who does full justice to its physiological actions and medicinal uses, in an article published in *La Médecine Moderne*, July 3, 1890, says almost nothing of its local uses. Marc Sée supplies what is lacking in this respect, in the issue of the same journal for July 17. The latter says he began using chloral locally in 1865, his first case being one of ulcer of the foot

which was covered with psuedo-membranous and gangrenous exudate. The result was highly satisfactory, so that he came to use it largely, only abandoning it when attracted to carbolic acid by the claims made for it by Lister. Chloral is applied to the wounds by Marc Sée in weak solution. He regards it as a powerful antiseptic, which cleanses wounds rapidly and is without the inconveniences of alcohol. It is also hemostatic, immediately arresting the bloody oozing which often embarrasses a surgeon. In strong solution—equal parts chloral and water—it acts as a caustic; Sée has found a two or three per cent. solution the appropriate one for ordinary purposes.

In addition to wounds and ulcers, Sée has employed chloral with benefit as an injection into the urethra, vagina and bladder, in cases of catarrhal inflammation, and into fistulous tracks, and in deep suppurating cavities, when evacuation of the pus was poor in spite of drains. The coagulating power of chloral has been utilized in injections for the cure of hydrocele, as a substitute for iodine. Sée declares that he has employed chloral for this purpose in ten per cent. solution, for the past fifteen years. He has treated perhaps two hundred cases, and asserts that all have been cured without the least accident, and that he has no knowledge of a single relapse. His method consists in injecting thirty grams of the solution, which is allowed to remain in for fifteen minutes and then withdrawn partly or wholly. In two or three days a more or less considerable effusion into the tunica vaginalis takes place, but this is absorbed gradually and completely. Such chloral injections are not suitable for all cases, because no injections will cure a case in which the walls of the sac have become hard and rigid; incision alone suffices here.

In the treatment of varicose veins, Sée has followed the method of Schwalbe, but has substituted chloral for alcohol. The result has been the same, the blood has been coagulated slowly in the vessels, which subsequently retract slowly. He has also made trial of it by injection into cysts of various kinds, but the results are as yet incomplete.

The writer cannot verify most of the assertions of Sée, but he has found chloral valuable in a class of painful irritable ulcers which Sée does not specifically mention, namely fissures of the anus. The employment of five grains of chloral in rectal suppository, repeated two or three times a day, and after a movement of the bowels, has cured such an ulcer without resort to the knife. Chloral, employed in the same way, has also proved very soothing and healing in slight lacerations of the vaginal mucous membrane. If Marc Sée's experiences with it is verified by others, chloral will have a much more extended use, becoming a substitute for some of the established uses of the tincture of iodine. We hope some one nearer home will supply the needed information for confirming or refuting his observations.

TUBERCULOSIS AND PSEUDO-TUBERCULOSIS.

Tuberculosis has been a scourge of the human race for centuries. As physical diagnosis was practically unknown until the time of Laënnec, and even pathological anatomy had not begun to be studied until towards the close of the sixteenth century, it is easy to see how many wasting diseases, being judged by their symptoms only, were confounded with tuberculosis. But even after pathological anatomy became a general study, much confusion existed as to what constituted tubercle and what did not. At one time, and that as late as the first half of the present century, some held that granulations were the only true tubercles, while others maintained that caseous masses were the true type, and that miliary tuberculosis was a special disease; and still others that they were all different manifestations of the same disease.

G. H. Roger, in the *Gazette Hebdoma-*

daire, November 8, 1890, gives an excellent review of the past and present views of tuberculosis and its pathology, about which we have admittedly learned much, but have certainly much more to learn. He points out that the anatomical arrangement believed to be characteristic of tubercle—*i. e.*, three concentric zones: in the centre a giant cell, around it epitheloid cells, and surrounding all and forming the periphery, a ring of embryonal elements—is met with in other diseases, especially in syphilitic products, and has been seen to follow the introduction into the organism of animal parasites and inert foreign bodies. This arrangement, therefore, indicates nothing in itself; it is only the reaction of the organism in the presence of a pathogenic agent. Histology availed nothing to distinguish true tubercle from false, because it was not a question of structure; but when Villemin, in 1866, showed that tubercle was inoculable, and that by inoculation tuberculosis could be transmitted, the discovery afforded the desired means of differential tuberculosis. It was found that true tubercle when inoculated produced a similar lesion in the second animal, and that the disease by successive inoculations could be transmitted to a third animal, and from the third to a fourth, and so on for a series; whereas false tubercle could at most produce in an animal only a nodule from irritation, from which nothing further could be obtained. The macroscopic and even microscopic appearances of the two tubercles were the same, but one had infective properties and the other had not.

Another form of pseudo-tubercle is produced by various worms, which have been described by Leuckart, Koch and Laulaizé These produce by irritation a tubercle, but it is not infective. Such a tubercle, produced by the eggs of a distoma, has been found in a man who died of beri-beri.

When Koch, in 1882, described the tubercle bacillus, the specific character of tuberculosis became, in Roger's opinion, incontestable. At once the unity of the various tubercular manifestations—certain pleurisies, cold abscesses, white swellings and Potts' disease—seemed assured. Very soon, however, Malassez and Vignal described a tuberculosis due to another parasite than that of Koch. By inoculating a cutaneous tubercle, these experimenters demonstrated a disease transmissible in series, and seemingly produced by a mass of zoöglœa. Their results have been confirmed by other observers. Subsequently, Roger published, in company with Charrin, a note of a case of tuberculosis which arose spontaneously in a guinea-pig. The parasite producing it was cultivated, and pure cultures reproduced the disease in the rabbit, guinea-pig, and at times in the white mouse. The bacillus was different from that of Koch's; it produced granulations without degeneration, and the nodules stained differently from those of the zoöglœic tuberculosis. Other forms of tuberculosis have been described by Courmont, Pflüg, Nocard and Eppinger.

The tuberculoses produced by pathogenic agents other than the bacillus of Koch, are by Roger united under the name pseudo-tuberculosis. From this it would appear that tubercle can no longer be regarded as the specific product of the tubercle bacillus of Koch, but it seems to be a reaction of the organism which can be excited by very diverse agents. It should not be forgotten, however, that, with the exception of the disease produced by Malassez and Vignal by the inoculation of a human cutaneous tubercle, the pseudo-tuberculoses of microbic origin are observed only in animals. It is for the pathology of the future to determine the relation that exists between tuberculosis in animals and that in man; in the meantime we have at least learned that mere anatomical structure indicates nothing as regards the cause of the tubercle, and that there are different kinds even of infective tubercle, due either to different causes altogether or to different species of the same cause.

KOCH'S "LYMPH."

A letter received just as we go to press, from the regular correspondent of the MEDICAL AND SURGICAL REPORTER in Berlin, in reply to instructions cabled to him, says: "At present no lymph at all is to be had for any one, not even the large clinics in the Empire. As soon as obtainable you will get some."

We believe that this is about as near as any American has come to getting any of this remedy, unless Dr. Jacobi has really had some. When we get nearer and can inform the readers of the REPORTER more fully about it and the effect of its administration in this country, we shall hasten to do so.

BOOK REVIEWS.

[Any book reviewed in these columns may be obtained upon receipt of price, from the office of the REPORTER.]

PRACTICAL DIAGNOSIS AND PRACTICAL URINALYSIS. An Epitome of the Physical Signs of the Heart, Lung, Liver, Kidney and Spleen in Health and Disease. Edited by JOHN E. CLARK, M. D., Professor of General Chemistry and Physics in the Detroit College of Medicine. Fully illustrated. 12mo, pp. 193. Detroit: The Illustrated Medical Journal Co., 1890. Price, $1.00.

Dr. Clark states in his introduction that there is a demand for a work on physicial diagnosis which gives the main points briefly and plainly. He disclaims originality for the present book, except so far as the arrangement is concerned, and for some annotations and additions. The chapters on Urinalysis, however, are his own, being the laboratory processes used by him in instructing his classes in the chemical laboratory at the Detroit College of Medicine.

The book is full of useful information in a condensed form. It could, however, be improved in certain respects. For instance, in mentioning the physical signs of the first stage of phthisis, Dr. Clark says, under auscultation: "*At commencement*, jerky, 'wavy' inspiration; *at end*, inspiration harsh, and expiration prolonged, becoming 'tubular.'" This is too brief to be clear, and 'tubular' is open to misapprehension.

The book as a whole is a good one, its defects being such as are almost inevitable results of great condensation.

—Adulterated mace has appeared in Germany. The adulterant, according to Hanausek, is another species of myristica, probably Myristica malabarica, or Bombay mace.

CORRESPONDENCE.

Consumption Among Firemen.

TO THE EDITOR.

Sir: In your issue of November 29, Dr. J. H. Musser criticises my paper on *Consumption Among Firemen*, which appeared in the REPORTER, September 27, 1890. He states that I was either imposed on by the sources of my information, or misapprehend the facts on which my paper is based. I do not claim infallibility for myself; but would assure him that my only motive in undertaking that work was not, as he intimates, my anxiety to pull down anything which has the least claim to be called scientific medicine, but to learn the truth of a problem in the evolution of a disease which had not before been investigated.

He goes over the same ground which I traversed last August, so far as the Philadelphia Fire Department is concerned, and makes the discovery that out of the 33 members who died, 13 were suffering with the disease before they entered the Department. I agree with him that, if this is true, a great part if not all of the force of my conclusions is destroyed. But is this true, or is it mere fiction? Common prudence ought to dictate that before an assertion of such serious import is made, it should be substantiated by at least the semblance of invincible testimony, but all that he knows, he states, is the declaration of the clerk of the Philadelphia Fire Department. On interviewing this gentleman since, in regard to this question, he stated to me that his belief that these men were consumptive when they entered the Department, rested on the fact that they died in a comparatively short time after admission; and that he had no medical evidence whatever to support this opinion. This is a very natural view for a non-medical mind to offer in explanation of the astonishing death-rate which occurs among these men from consumption; but a careful medical man, especially when criticising another, ought to be on his guard against citing lay reports as if they were medical facts. Is this the way in which he and his *confrères* "add new facts and build up the science of medicine"? Is this befitting to one who says that he is "impatient with the lax processes of reasoning employed" by others? A visit to the Department of Public Safety, Broad and Market streets, would have shown Dr. Musser that, although the service had

an examining surgeon only during the last five or six years, the Department had been earnestly striving to admit none but able-bodied men for the last seventeen years, and even longer; that the applicant was required to make oath that he is free from disease; and that only after thorough scrutiny by the head of the Department was he admitted. Dr. Musser's assertion that these invalids were admitted on account of strong political influence is unsupported, and I trust he will be kind enough to furnish the proof on which it is founded.

That the high death-rate from consumption among the firemen of this city does not rest on any such fictitious basis as that which is assigned by Dr. Musser, is evident from the fact that a similar death-rate prevails among the firemen of other cities, the statistics of which I collected. *Fire and Water*, August 16, 1890, (a journal published in New York, and devoted to the interests of firemen) states "that the *average fire department* (Italics mine) draws its material principally from the ranks of active young mechanics, who bring to their new calling strength and energy. In New York the requirements are such as to guard about as effectually as is possible against the admission of poor material." Yet in New York City, and in spite of rigid medical examinations since 1867, more than 30 per cent. of the deaths among firemen were caused by consumption, and 10 per cent. more by other diseases of the lungs, as is shown in my paper.

Dr. Musser seems to be skeptical as to the assumption that firemen lead an out-door life. If these men could extinguish the fires of this city, undergo the most terrible hardships and risks to life and limb while pursuing their duty, without leaving their engine houses, their work might properly be called an in-door occupation: otherwise, I think not.

Now is the exaggerated death-rate of firemen from consumption due to the ravages of the tubercle bacilli, as Dr. Musser assumes, or to the influence of their peculiar employment? If the former, then it must be shown that they are more than ordinarily exposed to these organisms. Even if this were true, it would still have to be shown why physicians, nurses and attendants in consumption hospitals, who live, breathe, and have their being among these germs, are comparatively free from this disease, and why their death-rate from consumption, when compared with that of firemen, sinks into veritable insignificance. If the bacillus theory works in one case, it must also work in the other. To say that a fireman, suffering and dying from consumption, is a source of infection to his companions, is simply an unproven statement. There is probably not an adult in this city who has not at some time lived with a consumptive member of his family, or who has not occupied a house in which a consumptive lived or died, and yet the relative death-rate from consumption among firemen exceeds that of the general adult population by more than 25 per cent. Why is this, if there is not something in the fireman's vocation, independent of the suppositious danger of this germ, which makes him so liable to this disease?

I think that I have not overstated the death-rate from consumption among our city firemen; for since my paper has been published, I learned that, owing to a periodical examination and discharge of invalid members, not all the deaths occurring among those who served in the department are officially reported. But, in order to arrive at the exact truth in this matter, I cordially invite Dr. Musser to point out the other misapprehensions, spurious arguments and the quotation of worthless authorities, which he says are contained in my paper.

In conclusion I desire to say, however, that if this criticism is a specimen of "the close reasoning and absolute step-by-step demonstration" which is pursued by the adherents of the contagion theory, it is not at all surprising why their logic has betrayed them into an endorsement of some of the wildest medical vagaries of the present age.

Yours truly,

THOMAS J. MAYS, M. D.

Philadelphia.

Atmospheric Tractor.

TO THE EDITOR.

Sir: I have discovered within the last few days, that the "Atmospheric Tractor" described in the REPORTER, November 29, 1890, can be made to adhere firmly against the head of the child by the employment of only a few ounces of force. The method described last week consisted in displacing the air from the cup by a pressure proportionate to the area of the top of the handle or vacuum producer. If the diameter of the handle were one inch, the pressure required

would be about ten pounds. This would not, however, be exerted against the head, but entirely against the air within the cup.

By the new method of application, the sides of the cup are to be inverted, and the fundus placed firmly against the presenting part. If the sides of the cup be then gently reinverted, they will drive out the underlying air and become firmly affixed to the surface. Traction may then be performed in the usual manner. If the vacuum is not sufficiently perfect, as can be readily ascertained by touch, sufficient pressure may be afterwards exercised on the handle or vacuum producer to flatten the cup.

One of the chief advantages of the tractor is the facility with which it can be applied and removed. It can be applied in thirty seconds or less, and it can be removed in five seconds. To detach it, all that is necessary is to push up its edge. The air immediately rushes in beneath and separates it from the entire surface.

Another advantage is that it does not compress the head nor elongate any of its diameters, nor does its application or employment inflict pain, nor require to be preceded or accompanied by the administration of anæsthetics. It can be used long before the forceps would be available, and in all cases where their use would not be permissible.

Like all other mechanical devices, it must be used with "brains," in order to derive the greatest amount of benefit from it.

Unlike other obstetrical instruments, serious injury is not likely to result from its use by even the ignorant or reckless. Injurious pressure or force cannot be exerted with it. It weighs less than two ounces. Its sides are as soft and yielding as the surfaces with which it comes in contact. It cannot be affixed to a surface that is not continuous, resisting, and at least four and one-half square inches in area. It is, therefore, a mechanical impossibility for it to be applied over the eyes, mouth, nose or genital organs, even if those parts were so congested by pressure and detention as to render their recognition difficult.

Yours truly,

PETER MCCAHEY, M. D.

219 North Twenty-second St.

A NEW OPENING.—Carthage, the old city of Dido and Hannibal, is to be turned into a winter resort for invalids and pleasure-seekers.

NOTES AND COMMENTS.

Clinical Experiments with Diuretin.

Koritschoner has recently made numerous clinical trials at the Medical Clinic of Professor Schrôtter, of Vienna, with the new diuretic, *diuretin*, which is a mixture of sodium salicylate and theobromine. These experiments pertained to thirty-eight cases of general dropsy. Ten of these were cases of cardiac dropsy from chronic valvular disease; twelve were cases of dropsy from Bright's disease in some stage; in six the general anasarca was due to dilatation of the heart following emphysema or arterio-sclerosis; in four the cause of the dropsy was degeneration of the myocardium; in three it was hepatic cirrhosis; in two it was tuberculosis of the lung and serous membranes, and in one cancer of the liver.

The formula which Koritschoner uses is as follows:

℞ Salicylate of soda and theobromine, 4 to 8 grams
Warm water . . . . . 150 "

M. Dose, a tablespoonful every hour or every two hours.

Diuretin should be given in rather large doses; little benefit can be expected from a less quantity than four grams (sixty grains) a day; ordinarily to get the full advantage of the drug, medium doses, amounting to five or six, and maximum doses amounting to eight or ten grams, in the twenty-four hours, should be administered.

Diuretin is generally well supported, even when its use is prolonged for months. It rarely causes nausea, even in chronic Bright's disease when the appetite is gone, and but little food is tolerated. It does not cause vertigo; in rare instances patients complain of palpitation and temporary cardiac distress. Sometimes diuretin provokes diarrhœa.

As a result of these trials by the Vienna physician, the salicylate of soda and theobromine was found to be a very powerful diuretic, and in only five cases did it prove to be without action; these were cases of chronic Bright's disease, arterio-sclerosis with fatty myocardium, tuberculosis of the lungs and serous membranes—all had arrived at the last degree of cachexia, and succumbed a few days after their admission to the hospital. In ten other cases the action of the salt was much superior to that of

digitalis, acetate of potash and all other diuretics that had been administered, though but moderate benefit followed the administration of the remedy. In the majority of the patients (twenty-three out of thirty-eight), the effect obtained was excellent, the dropsical effusions rapidly disappeared, and general amelioration followed. There is even danger that under the influence of the abundant diuresis caused by the drug, the ascites and œdema may disappear so speedily as to cause dangerous collapse. On this account, Koritschoner urges that in cases of abundant effusions, the remedy should be given with considerable caution; he would, in fact, advise always to begin the treatment by a dosage of four grams a day, and if this quantity makes no sensible increase in the urine, it may be augmented by one gram a day till a sufficient result is obtained.

The diuretic action of this medicine is said to be more marked in cardiac dropsies than in renal or hepatic, yet it may render precious service in chronic Bright's disease. In fact, in this disease where all the ordinary diuretics are apt to fail, the quantity of urine excreted often becomes augmented five or six times under the influence of the salicylate of soda and theobromine. In some cases of Bright's disease, the remedy seems to exert its principal action on the intestines, producing an abundant serous diarrhœa, which in a very short time causes the œdema to disappear, without too great enfeeblement of the patient.

According to the researches of Schrœder and Gram, the diuretic effect of the salicylate of soda and theobromine is due to the excitant action of the drug on the renal epithelium. As the epithelium is the principal seat of lesion in chronic parenchymatous nephritis, it might be feared that diuretin would be injurious in Bright's disease. The observations of Koritschoner show that this fear is not well founded, and that diuretin excites the renal functions without irritating the kidneys. Thus, in two cases of acute scarlatinous nephritis when Koritschoner gave diuretin in large doses, the patient recovered with astonishing rapidity, and without any complications. Under the influence of the medicament, the blood corpuscles and hyaline casts were seen from day to day to disappear from the urine. This same favorable action of diuretin on the nephritic processes has also been noted in chronic Bright's disease.

The new drug has not as yet—as far as we have been able to ascertain—been much introduced into this country, and as theobromine is very expensive, and as the cost of a drug is an important item in the economies of many physicians and their patients, it is doubtful whether many serious trials will be made with diuretin for some time to come.—*Boston Medical and Surgical Journal*, October 30, 1890.

Koch's Remedy for Consumption.

The *New York Medical Journal* says, in an editorial, November 22, 1890:

Koch's theory of the curative action of the remedy is, not that it kills the bacilli, but that it sets up in the diseased living tissue a process that ends in its necrosis; and he implies that the bacilli are cast off with the dead tissue, and that incompleteness of this part of the process may lead to re-infection, as also may failure of the dead tissue to become wholly separated from the organism.

To support all this, he gives absolutely no statistical evidence and not a single clinical history. We have only his statements, which in some respects are rather vague. We may add that so astounding are these statements—so utterly at variance with any known biological laws—that nothing but Koch's great name and the prevalent confidence in his accuracy, produced by his past successes, would lead one to consider his article at all seriously. He states positively that patients in the first stage of phthisis were freed from every symptom of disease, and might be pronounced cured; that patients with cavities not yet too highly developed improved considerably, and were almost cured; but that in very advanced cases there was no improvement. He says that by this he is led to suppose that phthisis, in the beginning, can be cured with certainty by his remedy, but he admits that, thus far, no conclusive experience can be brought forward to prove that the cure is lasting.

In regard to his theory of the way in which the remedy acts, namely, that it destroys tubercular tissue without affecting any other structure, whether healthy or diseased, it must be said that he professes to have discovered a substance that has this extraordinary peculiarity—it is destructive to the cells concerned in the inflammation called tubercular. Possibly it may kill them directly because it is poisonous to cells engaged in the formation of tubercle, or it

may kill them indirectly by producing inflammatory changes about them, or it may destroy them in some other manner. Whatever may be the way in which it acts, the statement is positive that it is an enemy of tubercular processes, not of tubercle bacilli. Indeed the bacilli in the dead tissue may again infect the organism, and probably surgical interference will be needed to remove them. No substance is known that has an effect at all comparable to what is alleged for this remedy. Vaccination, of course, is by no means analogous in its action, since a living organism is introduced which does not destroy the small-pox poison, but only renders the body proof against it, and, moreover, does not, so far as we know, seek out particular cells or tissues for destruction.

Acute Dementia Treated by Heat and Electricity.

At a recent meeting of the Glasgow Pathological and Clinical Society Dr. Alexander Robertson showed a patient who had recovered from this form of mental disease. She was 20 years old, and had been admitted to the Infirmary on January 10, 1890. She was of a retiring disposition when well, and very much given to reading when free from work. Menstruation had been regular up to the time of her illness. This was of about two months' standing, and no definite cause was known. There was no tendency to insanity in the family. There was some excitement with hallucinations at the beginning of the disorder, but after a few days she had passed into a state of much mental degradation. She was of filthy habits, and required to be fed by a nurse. She was quite passive in every respect. There was marked emaciation; her heart's action was very weak, with a very feeble pulse, and there was coldness and blueness of the extremities. Temperature was generally 1° F., subnormal. Her tongue was coated, and there were sores about the mouth.

The account of the case in the *Glasgow Medical Journal*, October, 1890, states that the treatment was, in the first instance, directed to stimulation and support of the general system. Fluid food and brandy were administered at short intervals night and day. Care was taken to keep the bowels free, both with stimulating enemata and laxatives by the mouth. She improved a little under this treatment, but this improvement was so slight that the propriety of sending her to a lunatic asylum was carefully considered about three weeks after her admission. It was, however, determined to try the effect of direct stimulating applications to the brain. So, on February 1, heat was ordered to be applied to the head by the water-cap for an hour daily, at 110° Fahr. This was continued for about a fortnight, and then the temperature of the water was gradually reduced during the second half of the hour until only ice-water was circulated; and this was continued for twenty minutes. On February 20 there was distinct improvement; the patient took her food herself and showed more mental activity in other respects. From an early stage of the treatment, friction to the surface was employed, but now systematic massage for three-quarters of an hour morning and evening was commenced, the heat and cold to the head being discontinued. After three weeks of the treatment by massage she had further improved in every way; but even then she had not become quite correct in her habits. At this time she gave slow and correct answers to two or three simple questions—such as telling her name and residence. The massage was now stopped and the continuous current to the head was begun and continued during the next month until April 21. The application was made every second day, and the strength of the current was four milliampères, but only two for the first two days. The positive pole was applied to the lower part of the spine, and the negative was slowly moved over the head. In about a fortnight the patient had become perfectly correct in her habits, was talking intelligently, and assisting in the maid-work. Her mind, however, seemed a little slow, though this appearance might be due to her natural diffidence. She had gained in weight.

Dr. Robertson said that there was no distinct improvement under general stimulation of the system, and this did not clearly begin till after the local applications to the head. The case, he said—so far as treatment and its results were concerned—corresponded with one of catalepsy which had been shown to the Medico-Chirurgical Society some years ago. Heat and cold, followed by electricity, had been used in that case. Dr. Robertson also said there was a special interest in the treatment of a patient with mental disease in a general hospital at present, owing to the late discussion in the

London County Council on the projected hospital for the treatment of acute insanity in London.

Koch's Syringe.

The readers of the REPORTER, who have been reading about the method of treating phthisis and lupus proposed by Koch, have remarked that he speaks of employing a hypodermic syringe of peculiar construction. This syringe—of which a cut has been sent to the REPORTER by the maker, E. Kraus, of Berlin—as will be seen by the accompanying illustration, consists of a

graduated glass cylinder, which holds about half a drachm, with a conical glass end, to which the needle is applied; and a rubber bulb with a silver tube to connect it with the glass cylinder.

This instrument is one which will no doubt be fully appreciated by the readers of the REPORTER who have read the articles of Dr. J. J. Thomas, of Youngstown, Ohio, in this journal, September 28, 1889, and October 25, 1890, because it is constructed on precisely the same principle as is the syringe Dr. Thomas uses, and as was proposed in 1876 by Dr. Edgar Holden, of Newark, N. J.

The syringe of Prof. Koch is an ingenious and very complete instrument, and seems to be admirably adapted to any sort of hypodermic injection.

Inebriety and Life Insurance.

The American Association for the Study and Cure of Inebriety will hold the first of a series of monthly meetings at the Hall of the New York Academy of Medicine, on Forty-third street, Dec. 10, at 8 P. M.

The subject of the evening will be presented by papers from Dr. T. D. Crothers, of Hartford, Conn., "On Alcoholic Inebriety and Life Insurance," and by Dr. J. B. Mattison, of Brooklyn, N. Y., "On Opium Addiction and Its Relation to Life Insurance." Other leading physicians will participate in the discussion.

Remedies for Skin Diseases.

The *British Journal of Dermatology*, November, 1890, contains the following valuable formulæ:

Aristol Solution in Ether.

℞ Aristol . . . . . 5 parts
Ether . . . . . 50 "

Aristol Collodion.

℞ Aristol . . . . . 2 parts
Collodion . . . . . 18 "

Aristol Pomade.

℞ Aristol . . . . . 5 parts
Vaseline . . . . . 15 "
Lanoline . . . . . 30 "

Strong Tincture of Iodine.—One of the best solvents of iodine is methylated spirits of wine. With this any strength of solution can be made in a very short time, which is a convenience when we wish to apply a powerful remedy to a very limited area.

Unna's Gelatine Dressing.

℞ Oxide of zinc and pure gelatine . each 10 parts
Glycerine and distilled water . . each 40 "

Atonic Ulcers.—Since the publication of an article on this substance, by Swetnam, in the *Canadian Practitioner*, in 1887, Necker, of the University of Toronto, has made frequent use of this drug in the treatment of ulcers and wounds, only employing it when the wounds seemed "atonic." After an experience extending over a few years he concludes that it is superior to iodoform and the majority of other dressings. Having powdered the surface over with the drug, he applies cotton-wool or antiseptic gauze, and, in addition, puts on a bandage to exert some degree of pressure. At the end of the third day the dressing is removed, the wound

cleaned with an aqueous solution of carbolic acid, and the dressing re-applied.

For Sycosis.

℞ Iodoform . . . . . 4 parts
Lanoline . . . . . 30 "

Leache recommends this ointment to be applied every night, and to be washed off in the morning with hot water.

For Warts.

℞ Corrosive sublimate . . . . . 1 part
Flexible collodion . . . . . 30 "

To be applied once daily upon the wart and around its base.

For Perspiring Hands.

℞ Eau de cologne . . . . . 120 parts
Tinct. of belladonna . . . . . 15 "

To be used as a lotion.

For Pediculi Pubis.—Brocq uses a lotion composed of

℞ Vinegar . . . . . 500 parts
Sublimate . . . . . 1 "

This application is said not only to kill the pediculi, but also to remove the nits.

For Eczema.

℞ Oleate of cocaine . . . . . 1–2 parts
Lanolin . . . . . 40 "
Olive oil . . . . . 10 "

This is recommended by Lustgarten for the treatment of eczema of the anus and genitals. Two applications daily, followed by the use of some absorbent dusting powder, hot hip-baths and soap. For the relief of pruritus ani he uses suppositories containing the oleate of cocaine.

For Intertrigo.—Wertheimer uses the following lotion for intertrigo, and speaks of the good effect often rapidly produced. He applies a compress wetted with the lotion and placed in contact with the part affected for an hour at a time, three or four times a day.

℞ Corrosive sublimate . . . . . 1 part
Distilled water . . . . . 2,000 "

If the intertrigo becomes very severe he prefers the local application of phenol, chloride of lime, etc., and also finds lotions containing alcohol or iodine very serviceable.

Saccharin Gun-Powder.

The *Druggists' Circular*, October, 1890, states that experiments were then being made with a view to the substitution of saccharin for sulphur and charcoal in the manufacture of gun-powder. The resulting compound is of a yellowish color, and when burned makes a good deal of smoke, but for mining purposes is equal to the common article.

Cocaine for Painful Teething.

The following prescription is taken from *Merck's Bulletin*, October, 1890.

℞ Cocaine hydrochlorate . . . . 1½ grs.
Syrup . . . . . 2 fl. drachms
Tincture of Coveus . . . . . 20 drops

M. Sig. To be rubbed on the gums several times a day.

OBITUARY.

SAMUEL LEWIS, M. D.

Dr. Samuel Lewis died, November 26, at Bryn Mawr, near Philadelphia. Dr. Lewis was born on the island of Barbadoes, West Indies, in 1813. He studied medicine in the University of Edinburgh, from which he was graduated in 1840 with the degree of M. D. In the same year he was elected a member of the Royal Medical and the Royal Physical Societies of Edinburgh, as well as a member of the Philadelphia College of Physicians. He was also elected to the membership of the American Medical Association in 1851, to the Philadelphia Academy of Sciences in 1855, and to the Pathological Society in 1860.

In 1884 Dr. Lewis was chosen President of the College of Physicians, but was obliged to resign a few months later on account of ill health. Dr. Lewis was an important contributor to medical and surgical literature, and it was due entirely to his generosity and enterprise that the Lewis Library was formed and united with the library of the College of Physicians of Philadelphia. The library, which contains an excellent portrait of its benefactor, numbers more than 10,000 volumes, some of which are extremely rare and of the very greatest value. During the last years of his life the perfecting of this library was the object of Dr. Lewis's unremitting care; and to his devotion, extraordinary judgment and faultless taste is due to a great degree the fact that the Library of the College of Physicians of Philadelphia has no equal in this country except the Library of the Government at Washington.